

**IN THE ABSTRACT:**

Please **DELETE** the Abstract in its entirety and substitute the attached new Abstract.

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An optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range is provided. An optical transmitter for supplying an optical signal to the transmission line is provided at one end of the transmission line. An optical receiver for receiving the optical signal from the transmission line is provided at the other end of the transmission line. An optical amplifier is provided between any two adjacent ones of the segments. A dispersion compensator is provided in association with each of the optical transmitter, the optical receiver, and the optical amplifier. The dispersion compensator provides a dispersion selected from a plurality of stepwise varying dispersions determined according to the predetermined range. ~~According to this method, each dispersion compensator can be configured so as to have a dispersion selected from a plurality of stepwise varying dispersions determined according to the predetermined range. For example, by preparing several kinds of dispersion compensators providing different dispersions and suitably applying to each segment the dispersion compensator selected according to the length of the segment, the total dispersion over the optical fiber transmission line can be easily made to fall within tolerance, thereby easily designing each dispersion compensator.~~

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